The Salesman's Dilemma
Page 2

COMPUTERWORLD
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GE At FJCC
Page 5

Over 15,000 Attend

FJCC Draws Record Crowds, Stresses New User Assurance

ANAHEIM, CALIF., Nov. 16 – The Fall Joint Computer Conference closed today in a blaze of success. Attendance went over the expected 15,000 mark and topped that of any previous conference by at least 10 percent.

The conference papers and – even more – the large exhibit area proved major attractions, and attendees spent most of their time in conference-related activities and comparatively little in the swinging social life of the Los Angeles area.

Attendance was also boosted by heavy local TV coverage. The artists' colony came to see computer-generated drawings, school classes came with their teachers to survey the wonderful world of EDP, and many other localites arrived after seeing part of the technical sessions on their home TV screens.

A recurring theme of the conference papers was the demand for the non-computer areas of business and society to adjust themselves to the new age. In a session on law enforcement, it was clearly stated that computers cannot best serve industry or the community unless this happens. A "tradition of change" was said to be a necessity in managing the computer age.

The increasing assurance of computer users was heavily reflected in the FJCC exhibits. Firms that had previously avoided the end-user market were now launching major products designed for the newly-sophisticated users.

OEM suppliers such as Ampex and Bryant were putting their first user-directed products on the stands. New firms, large and small, were offering plug-in compatible tape units, disk drives, disk packs, and displays for direct sale to computer installations.

And these new user-directed products were not offered without due consideration of the maintenance

continued on page 7

New Potter Encoding Technique Promises Greater Data Densities

PLAINVIEW, N.Y. – Potter Instrument Company, Inc., has announced the commercial availability of a low-cost adaptive logic circuit attachment, ADLOGIC, that makes possible increases of 50 percent or more in the storage capacities and data transfer rates of "all disk packs and 1600-bpi tape handlers."

ADLOGIC can increase the effective information densities of high-density magnetic tape units, disk pack drives, and other peripheral units that use the phase encoding recording technique by a factor of 1.5 to 1.7 times. Yet, according to Potter, the attachment requires no circuit changes, imposes no additional requirement on the unit's recording or playback response, and does not increase the actual packing density. The improved performance is achieved through electronic coding techniques.

The ADLOGIC technique has been used successfully by Potter for the past three years in its RAM (Random Access Memory) unit, which utilizes magnetic tape loops in interchangeable cartridges. Now, having realized that the technique is equally applicable to any recording device that uses the phase encoding method, Potter is offering ADLOGIC attachments for use with competitive peripheral units and controllers.

The Potter innovation is simply a "black box" that is inserted between a peripheral device and its control unit. In tape or disk systems in which a number of peripheral units are connected to a single controller, the ADLOGIC attachment can be located in the controller and shared by the connected devices.

Present plans are to offer the attachments on a lease basis only, not for purchase. ADLOGIC for single-channel devices can be leased for as little as $80 per month. A Potter spokesman said that the attachments are already in production (because of their use in the RAM units) and can be delivered in two to three weeks.

The initial commercial units, however, will offer increases of "only" 33 percent. Units that provide 50 percent improvements should be available within a few months.

An example of ADLOGIC's effects is its application to a new magnetic tape handler introduced by Potter at the FJCC last week. This unit, operating at 75 inches per second and its standard 1600-bpi recording density, normally provides a data transfer rate of 120 KC. When equipped with the ADLOGIC attachment, however, the same tape handler transfers data at a rate of 180 KC – a rate that would otherwise require the use of a transport operating at 112.5 inches per second.

ADLOGIC increases the effective recording density by increasing the ratio of information transitions to clocking transitions, while still retaining the self-clocking characteristics of

continued on page 7

ARIES Offers Flowcharting System For Sale

WASHINGTON, D.C. – ARIES Corporation has entered a new field of endeavor, proprietary software products, by announcing AutoDiagrammer, an automatic program flowcharting system for IBM System/360 Model 30 and 40 computers.

The ARIES announcement is significant in two respects:

- It underlines the increasing importance of automatic flowcharting schemes; and
- It marks an unusual approach to the sale of proprietary software in that ARIES is offering AutoDiagrammer for outright purchase rather than for lease.

Richard P. Daly, president of the Washington-based information systems firm, stated, "ARIES believes a new approach to marketing proprietary software is in order. Up to now firms have relied on leasing arrangements in order to protect their proprietary rights. ARIES, however, is marketing AutoDiagrammer on an outright purchase basis and, in light of the extremely competitive purchase price of $1,200, anticipates large-volume sales."

Last week COMPUTERWORLD disclosed that Applied Data Research, Inc., has already leased approximately 130 of its competitive Autoflow flowcharting systems to commercial users and government agencies. Autoflow, available on either a three-year lease or service basis, is being used primarily on IBM System/360, 1400 Series, and 7090 computers. It produces two-dimensional flowcharts directly from COBOL, FORTRAN, or assembly language programs.

New Process Makes Shaded Pictures Of Nonexistent Objects

WHITE PLAINS, N.Y. – A new computer process for producing toned (shaded) pictures of any three-dimensional object has been developed by Mathematical Applications Group, Inc. (MAGI). What makes the process unique is the fact that the object being portrayed is not photographed and is not physically present during the process.

The new technique, in effect, causes a computer to simulate a camera, light sources, and the object to be pictured. MAGI believes the process is a significant advance in computer graphics and should have important engineering, film, theatrical, medical, and military uses.

MAGI, according to Sales Manager Aristides Miliotes, is a scientific computer applications and software house with headquarters in White Plains and branch offices in Lexington, Mass. and Stockholm, Sweden. In its 18-month history, the company has grown from 3 to 35 employees. MAGI specializes in the programming of advanced scientific applications such as displays, nuclear weapon effects, shock wave phenomena, and simulation of combustion processes.

How It Works

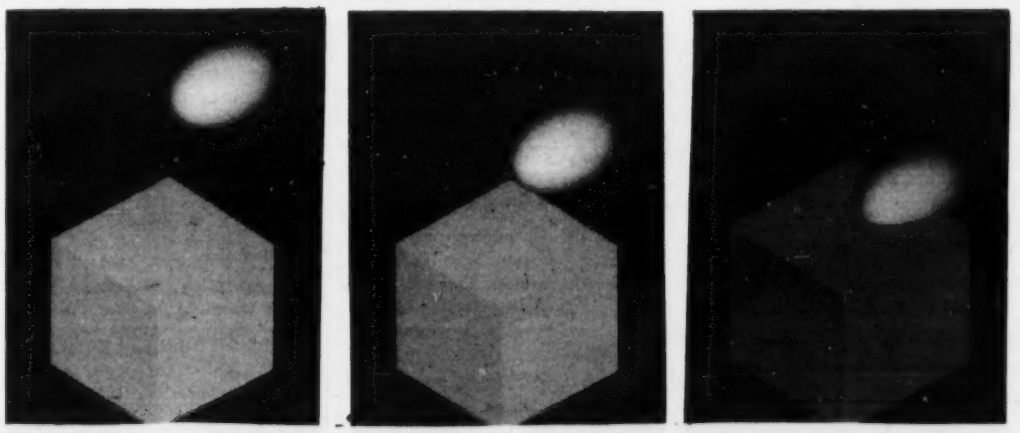
To use the new technique, the shape of the three-dimensional object to be pictured must first be manually converted to a mathematical representation and keyed into punched cards. The object's size and shape are defined in terms of nine basic geometric forms (such as spheres, cylinders, and parallelepipeds), whose relative sizes and positions are stated in terms of their coordinates in three-dimensional space.

Additional data describing simulated light sources and the simulated camera position and focus are also punched into cards. Then the cards are fed into a computer equipped with a special cathode ray tube whose intensity can be controlled by the stored program.

The computer traces the light rays from the simulated light sources to the simulated object, and also through the simulated camera lens to a point on the CRT. In this way, the computational process determines the light intensity at a large number of points on the tube.

The controlled-intensity rays from the CRT are then used directly to expose standard Polaroid film. The result is a fully-toned picture of the desired object, similar to one which might be taken of an image generated by a high-resolution TV system.

According to Dr. Philip S. Mittelman, President of MAGI, the new technique should find wide application in engineering design studies, where it can eliminate the necessity for producing expensive models. Architectural designs, for example, can be visualized in three dimensions, from any specified angle and under a variety of lighting conditions.



This sequence of pictures, produced by MAGI's new computer graphic process, shows a simulated egg dropping into a simulated box. Moreover, the pictures were "shot" by a simulated camera and illuminated by a simulated light source, as explained in the story.

Motion pictures can be made with the new process by producing a sequence of pictures in which the computer takes account of the motion of the various bodies, as shown in the photos. This technique should be especially useful for educational and animated cartoon films, and could eventually result in the generation of three-dimensional sets for theatrical use, with the actors actually performing on a bare stage.

The system could also help doctors by supplementing X-ray studies of internal organs, and it should aid the military in visualizing new equipment and obtaining three-dimensional views of terrain maps.

Marketing Plans

William D. Lanning, manager of MAGI's Lexington office, told COMPUTERWORLD that the new technique is now in operation on a Philco 2000 computer system in Willow Grove, Pa.

Dr. Mittelman says MAGI "expects to offer a commercially useful system within the next six months." He also notes that research is continuing, particularly in the area of color. The firm expects to be able to adapt the process so that color pictures of three-dimensional objects can be produced in addition to the black-and-white pictures now available.

Editorials

A Good Name Is Hard To Find

At its recent annual meeting in New York, the former American Documentation Institute renamed itself the American Society for Information Science. Dr. Bernard M. Fry, the society's president, said the name change "reflects the fact that information science has come of age and our society has become its most representative professional organization."

The second half of that statement is highly debatable. But in any case, Dr. Fry's society – through its quick, decisive action – earned the rights to a name that would have been eminently suitable as a new title for the Association for Computing Machinery.

The ACM has been pondering the idea of a name change for more years than most of its members care to remember. Its governing council is now considering a new name that would include the contrived and (in our opinion) unfortunate term "informatics."

As the pioneer professional society in the EDP field – and still the one best qualified to represent the whole gamut of computers and their applications – ACM clearly deserves and urgently needs a definitive name to replace its present, painfully outdated one.

Many of ACM's members maintain that the society needs a well-defined focus, set of objectives, and professional development program even more than it needs a new name. But that's another story

Our point is that ACM, as a result of its continuing procrastinations, has lost out on a name that would have ideally reflected its wide scope of activities and responsibilities in the emerging disciplines of information science.

Now You Can Have Your Cake . . .

During the past few months, new magnetic tape handlers that are plug-interchangeable and program-compatible with the IBM 729 and 2400 Series units have been introduced by MAI and Midwestern Instruments. Ampex Corporation unveiled a similar unit at the Fall Joint Computer Conference last week.

These tape handlers can directly replace the equivalent IBM units, at significant cost savings to the user.

Now Potter Instrument Company, with its ADLOGIC attachment, is offering users of 1600-bpi tape handlers and disk pack drives an opportunity to achieve 50 per cent increases in effective storage capacities and data transfer rates at a nominal cost, as explained on page 1.

As a result of these new developments, it will be possible for users of IBM computers to enjoy significant decreases in peripheral equipment costs and/or increases in throughput without completely "leaving the fold" and the support and reassurance it provides.

This is a welcome trend.

COMPUTERWORLD
THE NEWSWEEKLY FOR THE COMPUTER COMMUNITY

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Letters To The Editor

To the Editor:

Can you stand a bit of criticism? Your Nov. 8th edition reached me today (Nov. 14) and I see your original target is getting blurred. Your ad on the last page says "Look at our Datelines." Well, buddy, there isn't one date-line in the whole issue. Wash., D.C. or White Plains, N.Y. is not a date-line. The entire issue appears to be a collection of publicity releases. Who cares about the Stock Tables in a Computer Publication? (We transmit complete lists to our member papers daily.) And to cap it all the Calendar listed events that were over by the date of receipt.

I just reread the glowing promises in your 1st edition, tsk, tsk.

I realize that you must rely on press releases for new announcements, but a date would help . . . and a little rewrite would help still more. A lot of us buy a publication for the editorial and news content . . . we don't need the recruiting ads. In fact I don't circulate mags that are loaded with ads. Why start trouble?

Jerry Fraenkel
Data Processing Manager
The Associated Press
New York, N.Y.

Right. Why start trouble? Don't pass COMPUTERWORLD around – make all your staff members buy their *own* copies.

But seriously, we *can* stand criticism. In fact, we encourage it and try hard to benefit from it.

We're doing everything we can to eliminate those mailing delays, and we make a point of rewriting and interpreting most of the news stories we use. Most of our readers seem to value the stock tables as a convenient wrap-up of the week's activity in computer stocks.

Thanks for your comments, Mr. Fraenkel. But – being only human – we can't deny that we're glad most of the letters we get look a lot more like the one that follows. Ed.

To the Editor:

I send you my heartiest congratulations on the success of your new venture, COMPUTERWORLD. I have read just about every issue since you handed me the charter issue at the DPMA Convention in Boston, June, 1967. I could ramble for pages on how useful and informative the paper is, but I no more have the time to write than you do to read!

Just wanted to jot this note to say, "Well done and keep it up!"

J. Chace Strickland
Assistant Vice President
North Carolina National Bank
Charlotte, North Carolina

To the Editor:

In your October 4, 1967 issue of COMPUTERWORLD, you printed a letter from Mr. L.A. Welke, Vice-President, Marketing, International Computer Programs.

We are planning to market a payroll service shortly after the first of the year and would like more information about the catalog of programs his company produces.

What is his detailed address?

T.C. Gorman
Assistant Cashier
Northwest National Bank of Chicago
Chicago, Illinois

The address is:
International Computer Programs
5704 Guilford Avenue
Indianapolis, Indiana

Incentive vs. Service

A Small Cloud

When an industry is getting started, many things are improvised. Some improvisations are successful, and they survive. Some are almost successful, and they are modified. Some are failures, and they are junked. But we are not concerned with failures here.

We are concerned with the continuing relevance of improvised ways of doing things. The pragmatic test is a good one, but one which must be applied again and again as circumstances change. What succeeds in the setting-up period may later fail. Factors which are relevant in the beginning may lose their relevance in an established industry.

A number of sales representatives of the largest computer manufacturer have brought to our attention a computer industry marketing practice which was, during punched-card equipment days, a successful sales commission improvisation, but which now seems to be increasingly in conflict with the concept of full commitment of service to the customer. The reason this question is raised is that the salesmen with the fewest possible conflicts in serving simultaneously the best interest of their firm, their customer and themselves.

COMPUTERWORLD considers the caliber of IBM's sales representatives to be, almost without exception, outstanding. These people, numbering some 10,000 to 12,000, are a task force that plays a key role in the communication of the information, ideas, and know-how that expand the successful application of computers. We find ourselves solidly in sympathy with their concern over the potential conflict-of-interest situation which the 'charge-back' practice described below can in come cases create.

It's only a small cloud now. But with the advancing pace of computer technolgy, it could greatly expand. Let's hope that it will be dissipated before it ever becomes a storm cloud.

The Salesman's Dilemma

Consider the plight of a salesman placed in the following situation:

Example 1

A customer has a 7094 system renting for $75,000 a month, which was installed in 1964. In 1966 a new representative takes over the territory. A year later the customer wishes to replace the 7094 with a 360/50 which can handle the same work load. The new rental is $60,000 a month, saving the customer $15,000 per month.

If the IBM sales representative accepts this new order, he will lose a commission on $15,000 a month of revenue. For example, if he had sold a $15,000-per-month 360/40 order the previous week, he will, if he accepts the 360/50 order, lose all his commission credits for the previous sale. This is true regardless of the amount of rental revenue that IBM may have already received from the 7094 installation, or the fact that the previous sales representative may have mistakenly sold the customer a computer more powerful than he really needed at the time.

Example 2

A customer needs six 60-kb tapes on his 360. In 1965 he installs Model 2400 Model II's. Later, when the cheaper Model IV's come out he wants to replace his present ones, and save the (quite considerable) difference.

If he does so, IBM will take back from the representative the full commission on the difference between the two rentals – although the Model II's have been used for two years and even though the customer only got them because the Model IV's had not yet been announced.

Example 3

An engineering firm, with a small and steady calculation load, installs an IBM 1620 in 1962. After renting this system for five years, the firm looks at a new IBM 1130 because of the additional software. The new system, however, is cheaper than the present 1620 – not surprisingly after five years of technological progress. The sales representative, advising his customer, has to weigh the fact that he will lose sales credits equal to the difference between the slower, more expensive 1620 and the 1130 if the order is placed.

The Background

Selling is not easy. And selling computers is probably one of the hardest jobs around. The difficulty comes from the nature of the selling process, which requires the salesman to be true – not just to himself – but also to both his employer and his client. True salesmanship demands that the best interests of both parties be served – and a true salesman will work hard to ensure that they are.

This is the work that salesmen are paid for, and they are worth all of their commissions. Their payment is, of course, a matter of their contract with their employer. It varies widely in the computer industry. Some companies pay straight commissions – some straight salaries. One company charges the salesman for the cost of the programming support he supplies to his customer. Another charges the salesman for the price list he receives. All manner of differences exist between the various pay plans, but few of them are of any great concern to a computer user. They are simply more-or-less reasonable private arrangements between the company and its employee. They are designed to help motivate him to do his job – and in competitive situations they help a user to obtain the best possible system for his operation.

However, the particular sales plan that concerns us here is the IBM Data Processing Division Sales Compensation Plan. Like most of the other plans, it calls for a mixture of salary and commissions. The commission is based on the "quota points" which the salesman racks up. So far, nothing unusual here.

What is unusual is the method used to compute these "quota points". Instead of being based on the sales which a salesman makes, points are based on the additional revenue which the salesman derives from his territory, over and above the revenue presently being there.

One can understand the motivation of IBM at the time this plan was set up. The company was selling unit record equipment exclusively on a rental basis. Little technological obsolescence of EAM equipment was occurring. The com-

continued on page 7

System/360 Application Program Will Schedule Truck Deliveries

WHITE PLAINS, N.Y. – A new IBM System/360 application program called the Vehicle Scheduling Program, or VSP/360, is designed to help truck fleet operators to speed up deliveries and service calls by calculating faster, more economical routes.

An early version of VSP/360 has been tested by IBM World Trade Corporation in England, where IBM states that distributors ranging from tea companies to electrical parts suppliers have cut delivery time and expenses by as much as 25 percent. The program, however, is not scheduled for delivery to U.S. users of the System/360 until the third quarter of next year.

VSP/360 can aid trucking operations that serve a large number of customers on a regular basis. Potential users include such diverse businesses as chain and wholesale grocers, bakeries, department stores, utilities, and repair services.

To determine the most efficient truck routings, VSP/360 weighs the number of stops and the times and distances between them against the number of vehicles available. It can take into account a variety of other critical factors. A distributor, for example, can include average unloading times in his calculations, while a maintenance service manager can schedule priority stops ahead of routine calls.

To use the program, a fleet operator provides the System/360 with complete information about available trucks, potential stops, travel times and mileages. The computer then calculates the most efficient routing plan possible and creates an electronic model of the entire operation. With this model stored in its memory, the system is equipped to analyze thousands of specific service or delivery requirements and produce detailed routing instructions for each driver.

The basic routing plan is recalculated not on a daily basis, but only when there are major changes in the overall trucking operation. If such changes are necessary, VSP/360 can be used to help plan them. For example, it can pinpoint the best locations for new warehouses, or predict the effects of increasing or reducing the number of trucks in service.

In addition, the computer can use information generated by VSP/360 to analyze sales, determine truck maintenance requirements, or schedule warehouse operations.

Computer Aids Fruit Growers

NEW BRUNSWICK, N.J. – Computers are being used to simulate nearly everything these days – but would you believe an apple tree?

Automated fruit harvesting, while not a new concept, is subject to one severe limitation: the amount of force needed to shake loose all the ripe fruit (but only the ripe fruit) is rarely controlled effectively.

Techniques such as ultrasonic and mechanical tree shaking and air blasting have been employed with varying degrees of success in the past. But the problem with such methods is the difficulty of determining the exact amount of force needed to shake loose all those ripe, juicy red apples without bringing down and – hence wasting – all those tart little green ones.

In order to make such determinations, scientists at Rutgers University are now using a small analog computer, manufactured by Electronic Associates, Inc., to simulate fruit trees and learn their reactions to varying forces.

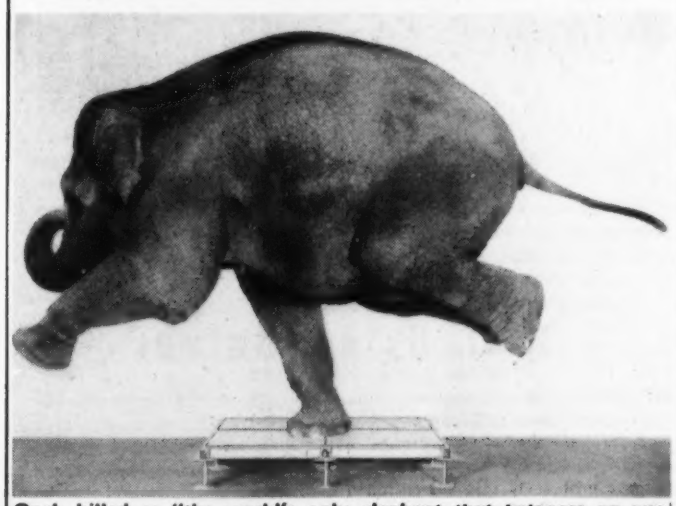
According to David Mears of Rutgers' Department of Agriculture Engineering, "Because of our dwindling farm labor force, there is a growing need for mechanized harvesting and handling equipment. Thus far we have found such automated equipment highly successful in harvesting crops like nuts, but when used with more sensitive fruits, the results have been disappointing."

As used in the Rutgers studies, the desk-top-size EAI TR-20 analog computer performs several functions.

First, it amplifies signals from accelerometers and strain gauges placed on an actual fruit trees. Then it records the signals on FM tape. Next, it analyzes the data, from which equations are derived profiling the tree. These are placed on the computer for mathematical computation and indication of changes in the tree caused by the varying amounts of force applied.

Such information, Mr. Mears said, may enable scientists to develop optimum harvesting equipment.

Elephant Tests Computer Floor



Opal, billed as "the world's only elephant that balances on one foot," demonstrates the rigidity of WacoPlate Series 510 raised flooring, just put into production by the Washington Aluminum Co. of Baltimore. Opal weighs in at about four tons. The new flooring provides complete accessibility by permitting individual stringers, as well as panels themselves, to be removed easily.

AEI Was Larger

GE Of Britain Acquires AEI In Biggest UK Takeover Offer

LONDON – Great Britain's General Electric Company (unrelated to the U.S. firm of the same name) has acquired control of Associated Electrical Industries Ltd. The $448 million takeover, which had been opposed by Associated Electrical's management, will lead to formation of a new giant in the electronics industry, with annual sales exceeded by only three other non-U.S. electronics firms: Philips Lamp Works of the Netherlands, Siemens A.G. of West Germany, and Hitachi Ltd. of Japan.

The takeover became official last week when Associated Electrical's directors conceded that British GE's offer had been accepted by the holders of more than 50 percent of AEI's shares. It was the largest successful takeover offer ever made in Great Britain.

The merged corporation will have annual sales of more than $1.2 billion, based on 1966 totals. British GE earned $21.6 million on sales of $504 million in the fiscal year that ended last March 31. Associated Electrical's sales were even higher, at $704 million in 1966, but its after-tax earnings were only $13.4 million.

Associated Electrical's comparatively poor earnings record was a major factor in GE's decision to attempt the takeover – as well as in the Industrial Reorganization Corporation's decision to back the merger move. IRC was established by the British government last year for the specific purpose of promoting mergers and amalgamations that will make British firms more competitive in international markets.

Both of the uniting companies are diversified makers of electrical and electronic equipment. Both manufacture process control computers – AEI under a license with Scientific Data Systems and British GE under a license with General Electric Company of the U.S. Associated Electrical, however, is strongest in heavy equipment such as switchgear, turbines, transformers, and cables, while British GE concentrates on lighter wares such as telephone equipment and microcircuitry.

Both companies have a major stake in telecommunications, and Arnold Weinstock, the 43-year-old "corporate doctor" who will head the merged firm, looks forward to significant further growth in this area. Mr. Weinstock also plans to merge the two companies' research operations, and it is believed that he may decide to sell part of AEI's heavy electrical equipment business to English Electric Company.

Conversion From RCA 301 Made Easy

NEW YORK – Somebody's finally decided to help users of *non-IBM* computers to convert their programs for operation on third generation equipment.

Program Translators, Inc. has announced the development of two translation programs that will enable users of RCA 301 computers to convert from 301 assembly language to either RCA Spectra 70 or IBM System/360 assembly language, and from RCA 301 RPG language to either Spectra 70 or System/360 COBOL.

Alfred Eichner, PTI's vice president for marketing, stated that PTI will convert RCA 301 users' programs at a flat rate of 55 cents per source card, with a guaranteed 100 percent conversion. He added that the entire conversion can be performed off-site and requires no programming support by the computer user.

Eichner reported that both translation programs have been tested and proven accurate on programs already converted for an international advertising agency and a midwest banking institution.

Program Translators, Inc. is a New York-based developer of software programming aids and a wholly-owned subsidiary of Computer Power International Corp., which also provides leasing and personnel services to the EDP industry.

PTI recognizes that the market for its present translators is limited to about 300 current users of the RCA 301. But Mr. Eichner noted that "PTI is nearing completion on a translator generator that will enable any program written in any language to be 'automatically' converted for use on any IBM System/360 or third-generation equipment of similar design."

RCA currently offers a 301 emulator for its Spectra 70 computers, but (as with other emulators) the 301 emulator does not enable users to take full advantage of the expanded capabilities of the Spectra 70 hardware. PTI claims that its new software translation process – a one-time operation – overcomes this limitation and eliminates the need for the extra-cost emulator.

ACM Offers 5 Time-Sharing Seminars

"Time Sharing: Fundamentals and Future" is the subject of a series of survey tutorials to be presented by the ACM on a tour of five cities from Dec. 4-8. These introductory courses are designed for programmers, analysts and managers who are working with or are evaluating the potential of time sharing.

Seminars will be held from 1 - 6 p.m. in the following locations: Dec. 4, Sheraton Cape Colony Inn, Cocoa Beach; Dec. 5, Holiday Inn, Tallahassee; Dec. 6, Sheraton Motor Inn Huntsville; Dec. 7, Sheraton Motor Inn, Memphis; Dec. 8, Howard Johnson's Motor Lodge, Shreveport.

The course outline includes: concepts and terminology, hardware, software, and future implications. Instructors will be Jerome B. Wiener, president of Mandate Systems, Inc.; Robert F. Guise, Jr., president of Com-Share, Inc.; and Sheldon Boilen, manager of programming at MEDINET.

The tutorials assume a computer background but no previous experience with time sharing systems. The fee of ACM members is $15, for non-members, $20. Depending upon availability of space ACM student members may be enrolled at a fee of $5.

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Orders and Installations

Long Island Trust Company, Garden City, N.Y. has ordered a Burroughs B3500 third generation computer system with multiprogramming capabilities. The leased system is valued at more than $550,000 and is scheduled for installation in January, 1969.

In addition to sorting and posting 100,000 checks per day, the computer will handle installment loans, Christmas Clubs and official checks. It will process payroll, billing and job costing services for the bank's customers as well as handling other bank and customer functions.

Epsco, Inc., Westwood, Mass., announced receipt of $531,000 in additional contract funding to produce synchro data converters for the avionics system of the U.S. Navy's Orion anti-submarine patrol aircraft.

The contract, awarded by the Naval Air Systems Command, is part of a multiple-year contract valued at $2.2 million. EPSCO received the contract in 1966, and it is expected to extend through 1970.

Comress, Inc., Washington, D.C. and the Illinois Power Company have recently negotiated a follow-on contract greatly expanding the Comress Systems and Computers Evaluation and Review Technique simulation services.

The new contract calls for Comress to apply the SCERT simulation service to Illinois Power's specifications preparations and proposal evaluations to procure necessary equipment to meet previously SCERT-planned data processing workloads.

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EDPeople

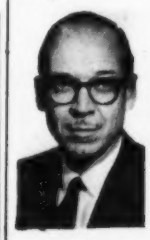
Ampex, Applied Logic Name New VP's

Eugene E. Prince, general manager of Ampex Corporation's computer products division, has been elected a vice president of the corporation, Mr. Prince joined Ampex in 1963.

Thomas D. Truitt has been elected vice president of *Applied Logic Corporation.* Mr. Truitt will be responsible for the installation and operation of the company's second time-sharing system.

Roy E. Platt has been named general manager of the Information Records Division of *IBM.* Mr. Platt, who joined the company in 1954, has been assistant general manager - operations for IRD.

John F. Koch, Jr. has been appointed manager of product planning by *Di/An Controls, Inc.* Prior to joining Di/An, Mr. Koch was vice president of marketing at Anelex Corp.



Oelrich

Four senior *Ampex Corporation* executives have been named group vice presidents. They are: **Thomas E. Davis, John N. Latter, Byron A. Oelrich** and **Robert L. Pappas.** The promotions, which do not significantly alter the company's top management organization, are in recognition of the widening responsibilities these executives have assumed over a period of time.

Robert J. Feuerzeig has been appointed Director of Marketing for *Programming Sciences, Inc.* for New York operations. Mr. Feurerzeig's appointment will further company policy of aggressive marketing in computer graphics, software development, programming education and system facilities management.

Theodore L. Tolles has been named General Counsel by *Mohawk Data Sciences Corp.* Prior to his appointment Mr. Tolles was associated with the Utica law firm of Ferris, Hughes, Dorrance and Brogen.

John M. Everett has been elected Vice President of Finance and Administration, for *Varian Data Machines. Mr. Everett's r* financial planning and policy recommendation, as well as administration of the controller's office, personnel office, and the facilities planning office.

Andrew S. Huson has been appointed manager of *Raytheon Computer Operation* in Santa Ana, Calif.

Herbert Roth, Jr., president of *Anelex Corporation,* has been elected to the board of directors of *Mohawk Data Sciences Corp.*, as well as chairman of the company's executive committee. Boston-based Anelex was merged on October 20 with Mohawk Data.

H. Lavell Kennington has been promoted to Director of European Operations for the Information Sciences Division of *URS Corporation* headquartered at Karlsruhe, West Germany.

Paul Gonzales has been appointed senior project engineer for the Wyle Systems Department of *Wyle Laboratories* El Segundo, Calif.

Robert B. Johnson has joined the Wyle Systems Department of *Wyle Laboratories* with responsibility for industrial design control of all systems produced by the department. Mr. Johnson will have project responsibility for electromechanical systems associated with Wyle Instrumentation programs.

Bryan L. Judd has been appointed manager of plans and programs in the Pacific area for the Computer Sciences Division of *Computer Sciences Corporation.* Mr. Judd will direct the company's program for acquainting military commands in the Pacific with the firm's broad range of computer-based services.

Orville J. Schulte has joined the corporate staff of *Sanders Associates, Inc.* and will assist with technical program management. A retired Air Force Colonel, Mr. Schulte served for the past two years as military assistant to the deputy director of defense, research and engineering for electronic and information systems.

David P. Weinberger has joined *Ability Search* as Manager, EDP Personnel Division. He will lead computer personnel recruitment and search programs for the firm's EDP client companies. Most recently, he served with Information Sciences, Inc., New York City.

Jack C. Horton has been named regional industry manager of marketing for *Honeywell* electronic data processing division's southwest region. He will be based in Houston and will head a marketing staff for the region set up to provide specialized sales support for all major industries including the government, hospitals and education markets in Texas, Louisiana and Oklahoma.

Edgar M. Bronfman has been named board chairman of *Ticket Reservation Systems, Inc.* TRS operates a nationwide network of electronic "box offices" which provide reserved seat tickets from remote terminals to theaters, sports events and other entertainment attractions throughout the country. Bronfman is president and director of Joseph E. Seagram & Sons, Inc. He recently became a major shareholder in MGM, Inc.

Ohio Bell Using Univac 494

CLEVELAND – A new business information system designed to improve customer service is being implemented by the Ohio Bell Telephone Company. The system is built around a $2 million UNIVAC 494 Real-Time Computer System just delivered to Ohio Bell for installation at its Cleveland computer center.

When the system is fully operational, customers will be able to request and get up-to-the-minute information about the status of their accounts. Moreover, the system will expedite service-order activities by providing the operating departments with instant information as to the telephone equipment installed at various customer locations.

The Univac 494 system will handle some 1,300,000 customer accounts in northern Ohio, embracing the Cleveland, Akron, Youngstown, and Toledo metropolitan areas. More than 200 teletypewriters in the company's various operating departments will be connected. Eventually, plans call for similar systems to cover Ohio Bell's entire operating area.

The UNIVAC 494 system at Ohio Bell consists of a CP with 65K words of core storage, two FH-432 and two FH-880 high-speed drum units, four Fastrand II mass storage units, eight units, three data communications subsystems, and one UNIVAC 1004 Card Processor.

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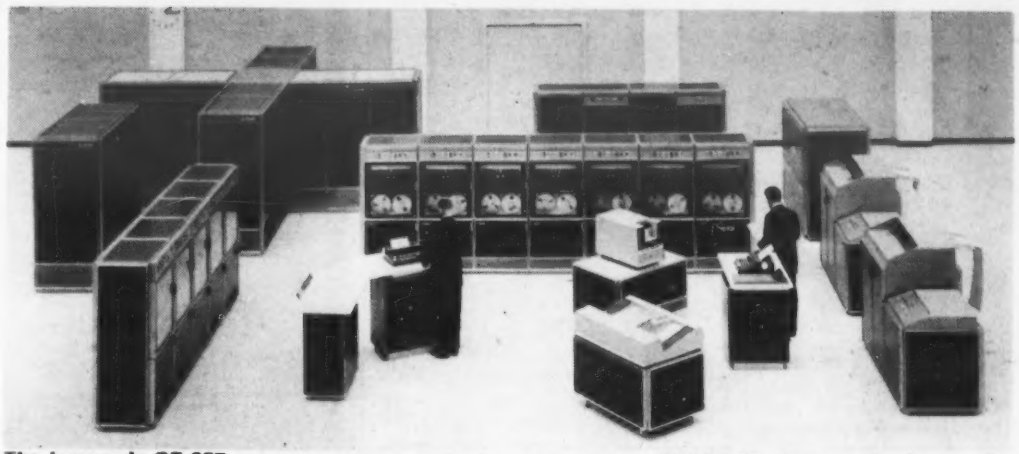
GE Draws Crowd At FJCC With GECOS III And Color Displays

ANAHEIM, CAL. – Among the 140-some exhibitors at the Fall Joint Computer Conference last week, the General Electric Company was one of those that attracted the biggest crowds. GE's computer operations, showing definite signs of a recovery from their tribulations of the past year, created quite a splash with some impressive new, nearly-new, and revamped hardware plus two significant new software systems.

The hardware on display included the medium-scale, time-sharing GE-420 system; the low-cost, recently-expanded GE-115 computer; and a new two-color version of the Datanet-760 CRT display terminal.

The new software consisted of a totally restructured version of the GECOS operating system for the large-scale GE-600 Series computers, and a time-shared information filling, retrieval, and update system for the smaller GE-200 Series computers.



The large-scale GE-635 computer system received a big boost in capabilities through the development, announced at FJCC, of an advanced operating system, GECOS III, that can simultaneously control on-line batch, remote batch, and time-sharing operations.

Color Displays

The GE Datanet-760, a CRT display unit already in fairly widespread use in the standard black-and-white version, was shown in a new two-color version of FJCC. GE thus continued the trend toward color displays that was started by Philco-Ford, as featured in the September 20 issue of COMPUTERWORLD.

"Since the Datanet-760 is a TV-compatible device, it is possible for us to substitute a color monitor for the usual black and white monitor and produce two-color data displays," said Dr. Thomas A. Vanderslice, general manager of GE's Memory Equipment Department.

Color Information displays can be useful, GE said, in indicating out-of-limits conditions in on-line, real-time applications, and in drawing more recognizable contrasts between certain types of data such as profit and loss, in-stock versus back-ordered inventory, etc.

The color-modified Datanet-760 is capable of displaying computer-generated information in red and green. Its availability is six months.

Time-Sharing System

Also demonstrated at FJCC was a new GE time-sharing system for industrial applications that employs the second-generation GE-200 Series computers with both teletypewriter and CRT display terminals. The system, designed as an in-house installation by GE's Memory Equipment Department in Oklahoma City, includes a filing, retrieval, and update system that can be linked with problem-solving programs written in the Dartmouth-developed BASIC language.

GE says the new system will bring useful time-sharing capabilities to users in purchasing, shipping, incoming inspection, production planning, master scheduling, cost accounting and engineering.

For example, a user can store a file of personnel records, parts lists, time standards, or market forecasts. Later he can retrieve any record or group of records and transfer them to a BASIC program to compute shop loadings or order forecasts, or to solve engineering problems.

The user can request hard copy through his terminal as either a high-speed printout or a teletypewriter listing. In addition, the Datanet-760 display unit lets him scan information rapidly and prepare and edit files and programs in an off-line mode.

The new system links either a 18K GE-225 or GE-235 processor, via a 16K Datanet-30 communications processor, with up to 12 Datanet-760 CRT displays and 9 teletypewriters.

GECOS III

Probably the most significant item among GE's FJCC announcements is the GECOS III operating system for the 600 Series computers.

According to Vern S. Cooper, manager of GE's Information Systems Marketing Operation, GECOS III efficiently integrates requirements for on-line batch, remote batch, and time-sharing operations into one system using a common data base.

A GE spokesman told COMPUTERWORLD that GECOS III is now in pilot operation and should be available to all GE-600 Series users by next March or April. He also said that the average time required to deal with an interrupt condition is about one millisecond, a significant improvement over the GECOS II response time.

The spokesman emphasized that GECOS III is completely compatible with the earlier GECOS II operating system from the user's viewpoint, but its internal organization and logic flow are entirely new.

The "heart" of GECOS III is a centralized file system of hierarchical, tree-structured design which provides multiprocessor access to a common data base, full file protection, and access control. Thus, GECOS III offers significant improvements in the performance and reliability of the multiprogramming, multiprocessing, and remote processing functions of GECOS II. Moreover, it provides concurrent time-sharing capabilities with BASIC language and text-editing functions – and the portion of the system hardware dedicated to time-sharing operations is dynamically variable.

How GECOS Works

GECOS III consists of three distinct elements, or types of routines:

* A resident executive (known as the "hard core monitor") which occupies 8-10K words.
* A small number of "system programs" (such as the job input processor) which perform services for the community of user programs within the system.
* A library of system subroutines which perform service functions (such as I/O) for individual user programs.

At system initialization, the hard core monitor is loaded into memory, and remains intact throughout GECOS III operations. It contains system configuration data, interrupt processing routines, fault processing routines, the "dispatcher," which allocates the processor(s), and the most heavily used system service subroutines.

All memory, except the hard core monitor, is occupied by programs from user-submitted jobs and by a few system programs, such as the job input processor, peripheral allocator, core allocator, and standard output disperser. These system programs handle the functions of introduction, preparation for execution, and sidpersal of results of user programs.

GECOS III makes only one distinction between user programs and system programs. System programs need to reference common data, such as the system configuration tables. Therefore, a special entry point to the hard core monitor is provided to allow such references. Programs which are permitted to use this entry point are "privileged" programs. If a user program attempts to gain entry, that program is aborted.

GECOS III provides true device independence. The I/O structure is defined so that user programs reference logical files and need not be concerned with physical device peculiarities. Association of logical I/O requests with a specific device occurs only when the physical I/O operation is initiated. Thus, a data file can be moved to a difference device whenever necessary.

GECOS III Time-Sharing

The GECOS III time-sharing system is designed for installations that have a batch processing commitment and also need time-sharing. The portion of the hardware dedicated to time-sharing is dynamically variable, providing an operating spectrum from full time-sharing through full batch processing, according to the specific requirements of the installation.

The time-sharing executive performs the functions of selecting, allocating, dispatching, and swapping time-sharing user programs. Since the executive is treated as a single system program by GECOS, it sub-allocates memory and sub-dispatches the processor to individual time-sharing user programs. The time-sharing executive also performs various services for individual programs, including input/output, accounting and creation and modification of files, catalogs, and their security definitions.

GECOS III File System

One of the major integrating factors in the design of the time-sharing system is the use of the GECOS file system. It is through this common file system that user programs in the batch system and in the time-sharing system communicate with each other.

A straightforward application of this capability allows a large batch job to generate or update a file (perhaps based on inputs from another file entered from time-sharing terminals) and have the updated file available for inquiry by time-sharing users.

An unusual and potentially valuable capability allows the time-sharing system to generate a job for the batch system. The user program in the batch system may be too large for convenient processing in the time-sharing mode, or it may be an existing program that cannot easily be modified for direct execution in the time-sharing mode. An option exists to allow a time-sharing program to wait for the completion of a batch job. In addition, there can be a direct "conversation" between a batch program and a remote terminal.

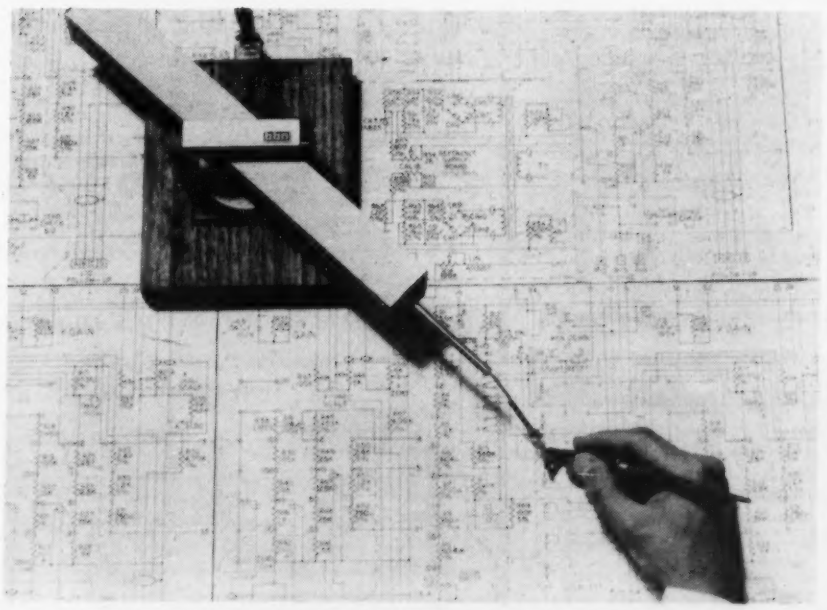
Portable Device Converts Graphic Info To Analog Voltages

SANTA ANA, CALIF. – A low-cost portable graphic input device for translating graphic information contained on large formats such as drawings, diagrams and maps into analog voltages is now available from Bolt Beranek and Newman's Data Equipment Division.

The Model 20 GRAFATRAN Graphic Input Translator's analog voltage outputs can be used for subsequent analog or digital processing in a wide range of applications – including graphic data analysis, computer-aided design, automated teaching systems, mapping, character recognition studies, and other commercial and industrial applications.

The Model 20 GRAFATRAN consists of a writing stylus and two precision film potentiometers (radial and azimuth) mounted on a gimbal assembly. The radial potentiometer has a travel of 10 inches; the rotary azimuth potentiometer can measure up to 100 degrees. The writing stylus is attached to the shaft of the radial potentiometer with an anti-parallax coupling that allows the stylus to be held at any comfortable angle without affecting reading accuracy at a given point. Friction and inertia are minimized, permitting essentially free-hand operation for sketching, tracing or writing. Open-circuit electrical accuracy is ±0.1% of full scale; mechanical accuracy is ±1 millimeter

To use the device, the operator simply places the GRAFATRAN next to the information to be translated. Using the GRAFATRAN stylus in thesdesired mode, the graphic data is easily transformed into analog voltages for processing.



The Model 20 GRAFATRAN Graphic Input Translator, new from Bolt Beranek and Newman, Inc., translates graphic information contained on large formats such as drawings, diagrams and maps into analog voltages.

Real Time Command To Space

The GE 625 computer at NASA's Wallops Station, automatically issued the real time command to a Scout rocket payload to begin ejecting water into the ionized shield (plasma) created when a spacecraft reenters the earth's atmosphere at high velocities. The shield causes radio communications interruptions, a major concern in previous manned flights, and this test, designated RAM-C, was established to study the problem. The computer acquired data from three radar sites to determine in real time when to command the payload to release the water.

Inktronic Printer Introduced

ANAHEIM, CALIF. – Teletype Corporation of Skokie, Illinois, introduced its long-awaited Inktronic Printer at the Fall Joint Computer Conference. The unit prints characters by electronically propelling highly-charged ink particles onto a roll of ordinary teletypewriter paper at a speed of 105 characters per second, or 1050 words per minute.

Teletype believes the new device will be "a perfect companion to high-speed tape-to-tape systems." Teletype Corporation is a subsidiary of Western Electric Company, which in turn is the manufacturing arm of AT&T.

The new printer uses a non impact printing technique. This results in quiet operation, yet the Inktronic unit (unlike most other non-impact printers) requires no special paper. The printer's only moving parts are in the paper-handling mechanism, so maintenance should be quite straightforward.

The Inktronic Printer prints up to 80 characters per line and can use either the 5-level Baudot code or 8-level USASCII. The character-by-character printing mode permits intermixing of long and short printed lines without the use of "fill" characters.

How They Moved Last Week

Week Ending November 17, 1967

NEW YORK STOCK EXCHANGE	1967 High	1967 Low	Week High	Week Low	Last	Week Net Change	Week %Change
Addressograph-Multigraph	75 1/4	46 7/8	69 7/8	63 1/8	65 1/8	- 4 1/8	- 6.32
American R&D	165 3/4	37 3/4	153	134 1/2	142	- 7 1/2	- 5.02
Ampex Corp.	40 3/4	22 3/4	34 3/8	31 1/4	34	+ 1 1/8	+ 3.42
Burroughs	174 1/8	80 7/8	163 1/2	144 3/8	162 1/4	+16 3/8	+11.22
Collins Radio	114 7/8	53	93 3/8	81 5/8	88 5/8	- 5 1/2	- 5.84
Control Data	163	53 1/2	147	129 1/4	142 3/4	- 3 3/4	- 2.56
Electronic Associates	30 1/4	16 3/4	21 3/4	18 3/4	21 3/8	+ 7/8	+ 4.27
General Electric	115 7/8	82 1/2	103 5/8	97 3/8	101 1/2	- 1 1/8	- 1.10
Honeywell	100 3/4	63 1/2	99 1/4	90 1/8	98 1/8	+ 5 3/4	+ 6.22
IBM	620 1/2	362 1/2	620 1/2	582	616	+29	+ 4.50
Litton	120 3/8	79 1/2	109 7/8	106	107 1/4	- 2 1/4	- 2.05
Nat Cash Register	131	67 1/8	131	121 3/4	124	- 4 1/2	- 3.50
RCA	65 1/2	42 5/8	59 1/4	55 1/8	57 7/8	+ 1 1/8	+ 1.98
Raytheon	116 1/4	49	106	90 1/4	103 3/4	- 3/4	- 0.72
Sanders	70 1/4	37 5/8	66 1/2	57 1/4	62 1/8	- 4	- 6.05
Scientific Data	135 1/2	70 3/8	123	110 5/8	123 3/8	+ 1 1/4	+ 1.02
SCM	82 1/4	43 1/2	47	43 1/2	46 5/8	+ 2	+ 4.48
Sperry Rand	57 7/8	28 1/8	55	48 5/8	55	+ 1 3/4	+ 3.29
NYSE COMPUTER STOCK AVERAGE						+ 1.41	+ 0.46
AMERICAN STOCK EXCHANGE							
Audio Devices, Inc.	30 3/8	21 5/8	24 5/8	22	22 1/2	- 2 1/4	- 9.09
Automatic Data Processing	50 3/4	41 1/2	49 1/2	43 3/4	48 3/4	+ 1 5/8	+ 3.45
CalComp	99 1/8	60 1/4	79	67 1/2	70 3/8	- 9	-11.34
Computer Applications	39 3/8	14	34 3/8	29 1/8	33 3/4	. . . .	. . . .
Computer Sciences	47 3/8	18	42 7/8	36 1/8	41	+ 5/8	+ 1.55
Digital Equipment Corp.	129 3/4	29 3/8	115 3/4	101 1/4	113 1/2	+ 1 1/8	+ 0.91
GC Computer Corp.	41	23 1/4	26 3/4	25 1/8	25 5/8	- 1/4	- 0.95
Leasco	93 1/2	33 5/8	83	76 1/4	81 5/8	- 1 1/4	- 1.51
Levin-Townsend Computer Corp.	57	10 7/8	47 1/2	41 5/8	44 1/4	- 2 5/8	- 5.60
Milgo Electronics	15 5/8	5 1/8	9 7/8	9 1/2	9 3/4	. . . .	. . .
Mohawk Data Sciences	183	154 1/2	169	154 1/2	160	- 8	- 4.76
Planning Research	69 3/4	19 5/8	65	61 7/8	65	+ 1 3/8	+ 2.16
Potter Instrument	37 3/8	12 3/8	29	25 1/8	25 1/8	- 2 7/8	-11.06
Randolph Computer Corp.	44 7/8	32 1/2	37 3/8	33 1/2	34 1/4	- 3/4	- 2.14
AMEX COMPUTER STOCK AVERAGE						- 1.59	- 2.74

OVER-THE-COUNTER	1967 High Bid	1967 Low Bid	Friday Bid	Friday Asked	Last Friday Bid	Week Net Change Bid	Week % Change Bid
Applied Data Research	30	3 1/8	21 1/2	22	25	- 3 1/2	-14.00
Bolt, Beranek & Newman, Inc.	30	8 1/4	23	24	20 3/4	+ 2 1/4	+10.84
C-E-I-R, Inc.	22	16 5/8	20 1/2	21	21 1/4	- 3/4	- 3.53
Computer Usage	64	20 1/4	54	55	51	+ 1	+ 5.88
Cyber-Tronics	17 1/2	4 3/4	10 3/4	11 1/2	12	- 1 1/4	-10.42
Data Products	17 7/8	2 1/2	17	17 1/4	17 1/4	- 1/4	- 1.45
Digitronics	18 1/4	6	14 1/4	14 3/4	14 1/2	+ 1/4	+ 1.72
DPA, Inc.	16 1/4	4 1/4	8 3/8	8 7/8	8 7/8	- 1/2	- 5.63
Electronic Memories	56 1/2	12 3/4	49 3/4	50 1/2	51 3/4	- 2	- 3.86
Fabri-Tek	15 3/4	6	9 5/8	10 1/8	9 1/2	+ 1/8	+ 1.32
LMC Data, Inc.	13 5/8	7 3/8	9	9 3/8	10 1/2	- 1 1/2	-14.28
Management Assistance	24 3/8	10 1/8	11 1/4	11 5/8	11 1/4	. . . .	. . . .
Memorex	226	63	172	175	172	. . . .	. . . .
Optical Scanning Corp.	92 1/2	25 3/4	65 1/2	67 1/2	66	- 1/2	- 0.76
Recognition Equipment, Inc.	131	48 1/2	118	122	114	+ 4	+ 3.39
Systems Engineering Labs	56 3/4	8 7/8	47 1/2	49	50 1/2	- 3	- 5.94
University Computing Co.	138	65	138	141	134	+ 4	+ 2.90

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1-519 Reproducer Model 1 100 cards per minute
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20 double panel ledges
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FJCC Attendance At All-Time High

continued from page 1

problem. Most of their makers had already set up field service operations to stand behind the products. One firm, Computer Communications Inc., had even designed its products so the local TV serviceman can diagnose and service them. (This is possible because CCI's display unit is a modified TV set, and its controller weighs only 37 pounds and can be serviced by replacing one or more of the 20 standard circuit cards.)

In the software area, too, an overflowing cornucopia of programs was being heaped upon the marketplace. Software Resources, a new firm, appeared to be adding new programs daily at its booth, and the more established software houses continued to announce new products and new sales of their existing wares.

Another significant development was a complete remote terminal system for use with the Univac 1108, said to be capable of increasing the remote users' throughput by up to seven times the previous maximum – and also to allow a service bureau to sell more efficiently the time on the central 1108 computer. This system, offered by University Computing, uses small control computers at both the remote and central sites to achieve the dramatic throughput improvement.

In fact, the use of small control computers in partnership with larger systems appeared to be a major trend. Conference speakers discussing how graphics were to be incorporated into programming systems unanimously rejected the use of interrupts to a single central processor as being just too inefficient to be practical. Instead, they went to the use of one or more small control computers to handle the standard editing and I/O tasks.

The additional thought being put into computers and their applications showed up even in such normally-mundane areas as punched-card design. Punched cards distributed at the conference were printed in full color to look like Thanksgiving cards. Institutions such as banks and utilities companies, which regularly send punched cards to all their customers, saw an opportunity to "humanize" their cards and overcome their usual highly impersonal image.

Though the FJCC organizers were naturally all smiles about the attendance records, the large crowds brought to light some of the problems of success. The lines at the registration counters were murderously long on opening day, and the problem of accommodating the crowd was cited as a major limiting factor in planning for future conferences – even if AFIPS stands pat with its present complement of member societies.

If new societies are granted admission to AFIPS in the future, this will tend to limit even more drastically the choice of conference sites. But one shouldn't quarrel with success, so we can probably look forward to even bigger computer conferences in the years to come.

Penna. RR Orders Univac 9300

The *Pennsylvania Railroad* announced the placement of an order for a Univac 9300 Computer System to be supplied by *Sperry Rand Corporation's* Univac Division, headquartered in Blue Bell.

UNIVAC Introduces Two Card Readers

The UNIVAC Model 0708 Card Reader, introduced at the FJCC, is a compact, low-speed unit that emphasizes reliability, easy operation, and a simplified interface using low-impedance lines with one connector.

Also unveiled at the FJCC was the UNIVAC Model 0707 Card Reader/Communications Terminal, which is capable of interfacing with most communication terminals that use USASCII.

Potter ADLOGIC Attachment Improves Tape And Disk Performance

continued from page 1

phase encoded recording. If two, three, or more information transitions are provided for each clock transition, the effective information density can be increased by a factor that approaches two as an asymptote. In practice, Potter states that factors of 1.5 to 1.7 can be obtained.

Potter emphasizes that ADLOGIC offers a practical extension of storage capacity without additional crowding of the actual packing density on the tape or disk. When recording engineers increase the practical packing density beyond the present state of the art, the ADLOGIC technique will continue to increase the effective information density by 1.5 to 1.7 times the normal packing density.

Potter's unique "black box" should attract a large and eager market, composed primarily of:

- Users of IBM and IBM-compatible 1600-bpi magnetic tape units; and
- Users of IBM and IBM-compatible disk pack drives.

For these users, ADLOGIC represents a comparatively low-cost way to obtain a 50 percent increase in storage capacities and data transfer rates. Thus, when increased throughput or more storage is needed, an attachment priced at $80 per month may well preclude the need for new equipment priced at several hundred dred – or even several thousand – dollars per month. With ADLOGIC, for example, an IBM tape unit rated at 180 KC can transfer data at a 270 KC rate, and a disk pack with a normal capacity of 58 million bits can store 87 million bits of information.

It should be noted, however, that the ADLOGIC attachment cannot be used with IBM or IBM-compatible tape units at densities of 200, 556, or 800 bpi. At these lower densities the older NRZI (Non-Return to Zero, IBM) recording technique is used instead of phase encoding, so the ADLOGIC coding technique is not applicable.

The Salesman's Dilemma

continued from page 2

pany was interested in insuring that its sales representatives did not give customers the "love 'em and leave 'em" treatment. Therefore it calculated its commissions not just on new business, but it also deducted the rental value of any IBM data processing equipment removed from customer sites in the territory. This meant that the salesman could not afford to concentrate so much of his time in the emotionally gratifying experience of making new sales that he neglected the welfare of current customers.

Effects of Fast-Moving Technology

However, in contrast to electromechanical equipment, the electronic technology of the computer moves most quickly. Machines which offer the best price-performance today are uneconomic in a few years. A sales plan that is geared to a slowly changing technology can be dangerously inadequate for the computer generations.

For example, under the IBM plan a salesman with a territory containing some old, comparatively uneconomic computers handling work which can be done more cheaply on new equipment can be economically penalized for encouraging his customer to switch to newer gear. If he does, although he may actually be increasing the probable future revenues for IBM by ensuring that the customer stays with them for a number of years, he could have negative "quota points" put on his sales record – so that he will have to sell more equipment just to get level! It does not matter that the salesman is ensuring continuing revenues for IBM for years to come, or that the new system will handle the work load more economically for IBM's client. It simply matters that revenues have been reduced from their previous level.

This seems quite unfair to us, and apparently to quite a number of people in the IBM sales organization. As we mentioned, the computer salesman is a most important member of the computer community, and his welfare is a vital concern to us all. Even more important, this sales plan can put the best interests of the user and the best interests of the sales representative at odds. Some might suggest that the more loyal an IBM customer is (i.e., the less he indicates that he is giving competitive equipment some consideration), the more likely it is that this sales plan will work against his best interests. In practice, we doubt that this is so, for the IBM salesmen we know are the type that would honestly put their customers' interests first.

A Proposed Solution

What's to be done? We believe that it would be in the best interest of IBM as well as of the computer community if the company modified its sales plan in order to account for the technological obsolescence of its computer equipment. For example, the charge-back value of a computer installation might decline by 20% a year over a five-year period. Therefore, if a customer replaced a 1620 used for five years with an 1130, the salesman would get full commission credit for the new order. If the customer had used the 1620 for only three years, only 40% of the value of the 1620 would be 'charged-back' to the sales representative. This seems a fairer way of doing things.

COMPUTERWORLD will be happy to publish any relevant comments from IBM, from IBM computer users, and from present or former IBM salesmen – or their relatives.

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Ampex Unveils IBM-Compatible Tape Unit And Core Memories

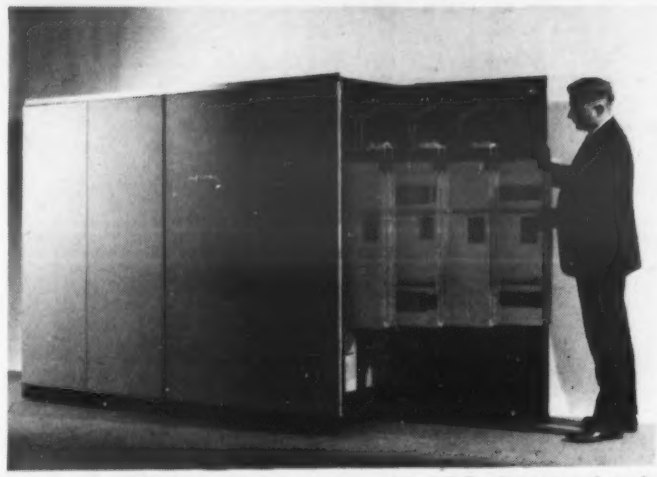
ANAHEIM, CAL. – Five significant new products – an IBM-interchangeable magnetic tape handler and four core memory products – were introduced by Ampex Corporation at the Fall Joint Computer Conference here last week.

Ampex, headquartered in Redwood City, California, is a leader in many aspects of magnetic recording technology, as well as in geophysical exploration.

Tape Handler

Among the five new Ampex products, computer users will tend to be most interested in the TM-16 tape handlers – primarily because the unit can be equipped for direct, plug-in replacement of IBM 729 or 2400 Series tape units. The TM-16 also features straight-line tape loading and semi-automatic threading.

The TM-16 is available with tape speeds ranging from 75 to 150 inches per second. The IBM- compatible models are available at either 75 or 112.5 ips. Recording can be in either the phase encoding mode, at 1600 bits per inch, or the older NRZI mode, at densities up to 800 bpi.



Up to 20 million bits of core storage with a 2.7-microsecond cycle time are provided by the Ampex Model RM mass core memory.

The new tape handler uses a single-capstan drive, which Ampex says requires 85 percent fewer moving parts than the more common pinch-roller drives. The straight-line tape path saves operator and machine time by eliminating the need to wrap the tape around a capstan or feed it through pinch rollers.

Deliveries of the IBM-interchangeable versions of the TM-16 are expected to begin in February 1968. Their prices will range from $15,700 to $17,500, which is far below the prices of the equivalent IBM units.

The new Ampex Model RM mass core memory offers capacities of up to 20 million bits, a data access time of 1.5 microseconds, and a full cycle time of 2.7 microseconds. Ampex claims these figures represent the highest speed/capacity combination developed to date.

The RM memory uses 22-mil lithium cores which are strung in a 2-1/2D, two-wire configuration. The 20 million-bit model is composed of four modules of 5 million bits each. This permits four-way interleaved operation and an effective cycle time of 675 nanoseconds.

The RM is suitable for use with most large-scale computer systems now in use, and will be available for delivery early in 1968. Capacities of 5, 10, and 20 million bits are offered, and word lengths can be up to 72 bits. The 20 million-bit size is priced at less than three cents per bit, or $600,000.

The Ampex TM-16 magnetic tape handler is plug-interchangeable with IBM 729 and 2400 Series units and features a straight-line tape path.

Model RG Memory

The Ampex Model RG is a modular core memory with a cycle time of 900 nanoseconds, a data access time of 35-nanoseconds, and capacities of up to 5 million bits. It uses the "traditional" 3D, four-wire core-stringing method.

The basic RG module can store up to 16,384 words of 40 bits, 8,192 words of 56 bits, or 4,096 words of 80 bits – all in four-bit increments. Through additional modules, the capacity can be expanded to a maximum of 65K 80-bit words.

Model RG is intended for medium-to-large-scale computers and for various data acquisition systems. Deliveries will begin next April, and prices will range from $11,000 to $275,000, depending on configurations and options.

Model RF-4 Memory

Model RF-4 is a compact core memory, completely contained on a 17-inch-square printed circuit board, that offers a data access time of 400 nanoseconds and a full cycle time of 1 microsecond. Capacity is 512 to 4,096 words, and word length can range from 4 to 20 bits.

The RF-4 memory is suitable for use in data acquisition systems as a high-speed buffer memory, in small computers as a main memory, and in specialized airborne and other digital systems. Prices range from about $4,000 and $8,000, and deliveries will begin next March.

18-Mil Cores

Number Five in the Ampex parade of new products is a line of ferrite cores with a diameter of 18 mils and a switching time of 175 nanoseconds. The Type 184-96 cores can be used in various memory stack configurations and are designed for applications requiring high-speed operations and wide temperature tolerances.

Ampex now produces cores with outside diameters ranging from 18 to 180 thousandths of an inch, and claims one of the broadest lines of ferrite cores in the industry.

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